

FAAM facility for airborne atmospheric measurements

FLIGHT FOLDER



Flight No.: B312
Date: 26 July 2007
Take Off: 10:52:34Z
Landing: 15:24:19Z
Flight Time: 4h31m45s

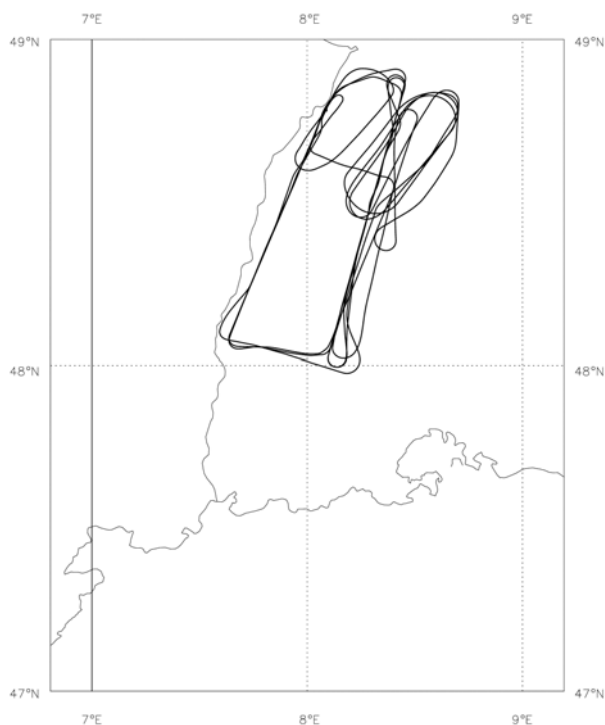
Campaign: COPS

Operating Area: Baden-Baden, Germany

POB	Position	Name	Institute
1	Captain	Al Foster	Directflight
2	Co-pilot	Ian Ramsay-Rae	Directflight
3	CCM 1	Dawn Quinn	Directflight
4	Mission Scientist 1	Hugh Coe	University of Manchester
5	Flight Manager	Mo Smith	FAAM
6	Cloud Physics / CDP	Kate Turnbull	FAAM
7	Core Chemistry / CCM2	Doug Anderson	FAAM
8	VACC 1	Angela Dean	Leeds University
9	CPI 1	James Dorsey	University of Manchester
10	CPI 1	Martin Gallagher	University of Manchester
11	CVI	James Bowles	Met Office
12	Nephelometers / PSAP	Dave Tiddeman	Met Office
13	AMS	Will Morgan	University of Manchester
14	Mission Scientist 2	Keith Bower	University of Manchester
15	Mission Scientist 3	Justin Peter	Leeds University
16	Mission Scientist 4	Alan Gadian	University of Manchester
17	Mission Scientist 5	Stephen Mobbs	Leeds University
18			
19			
20			

Flight Track:

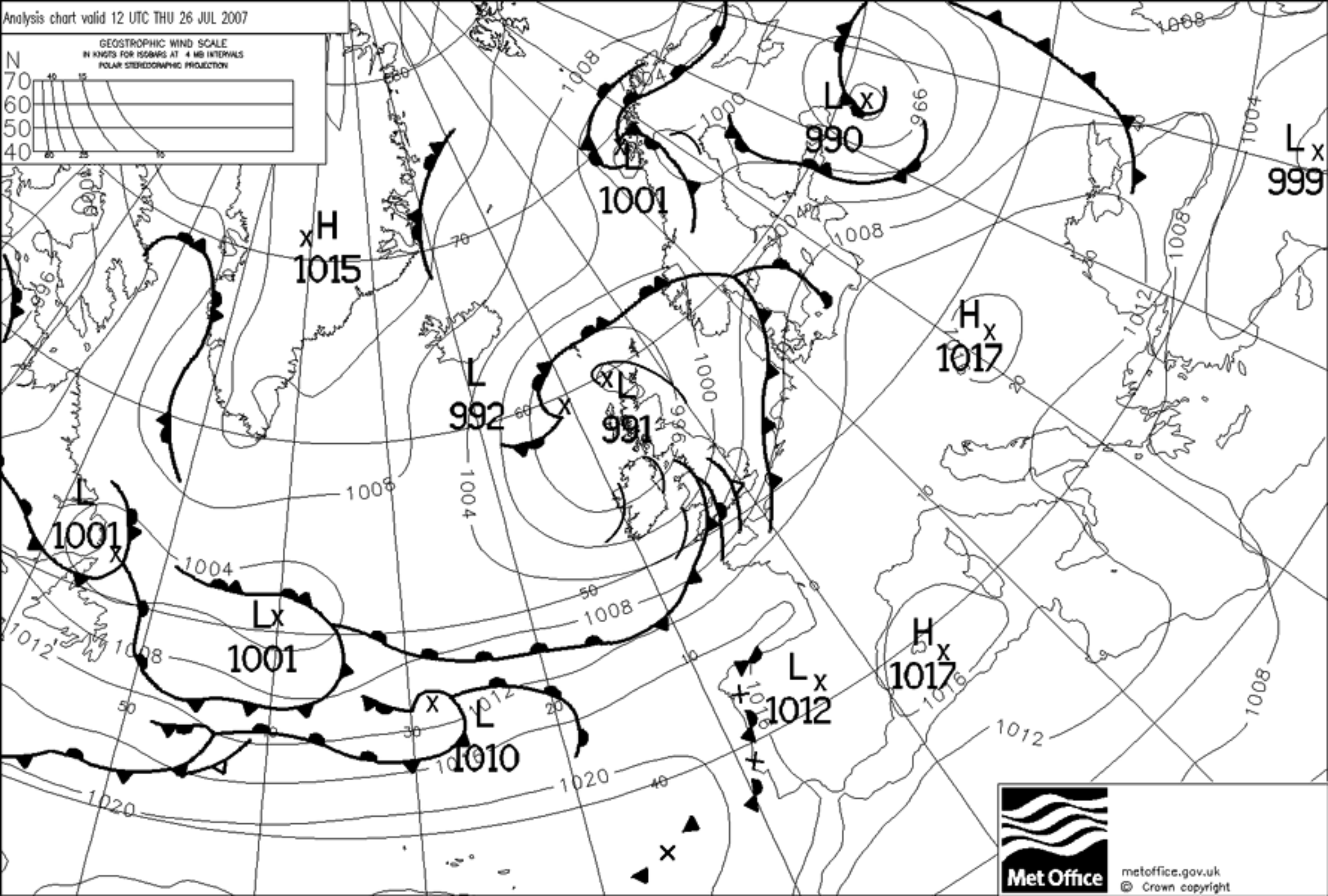
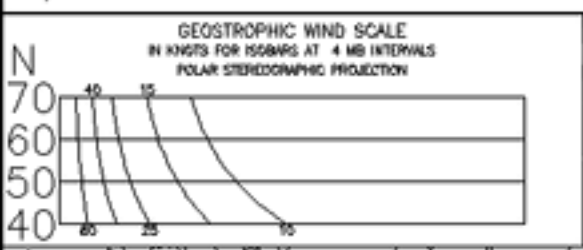
B312 Track 26-JUL-07



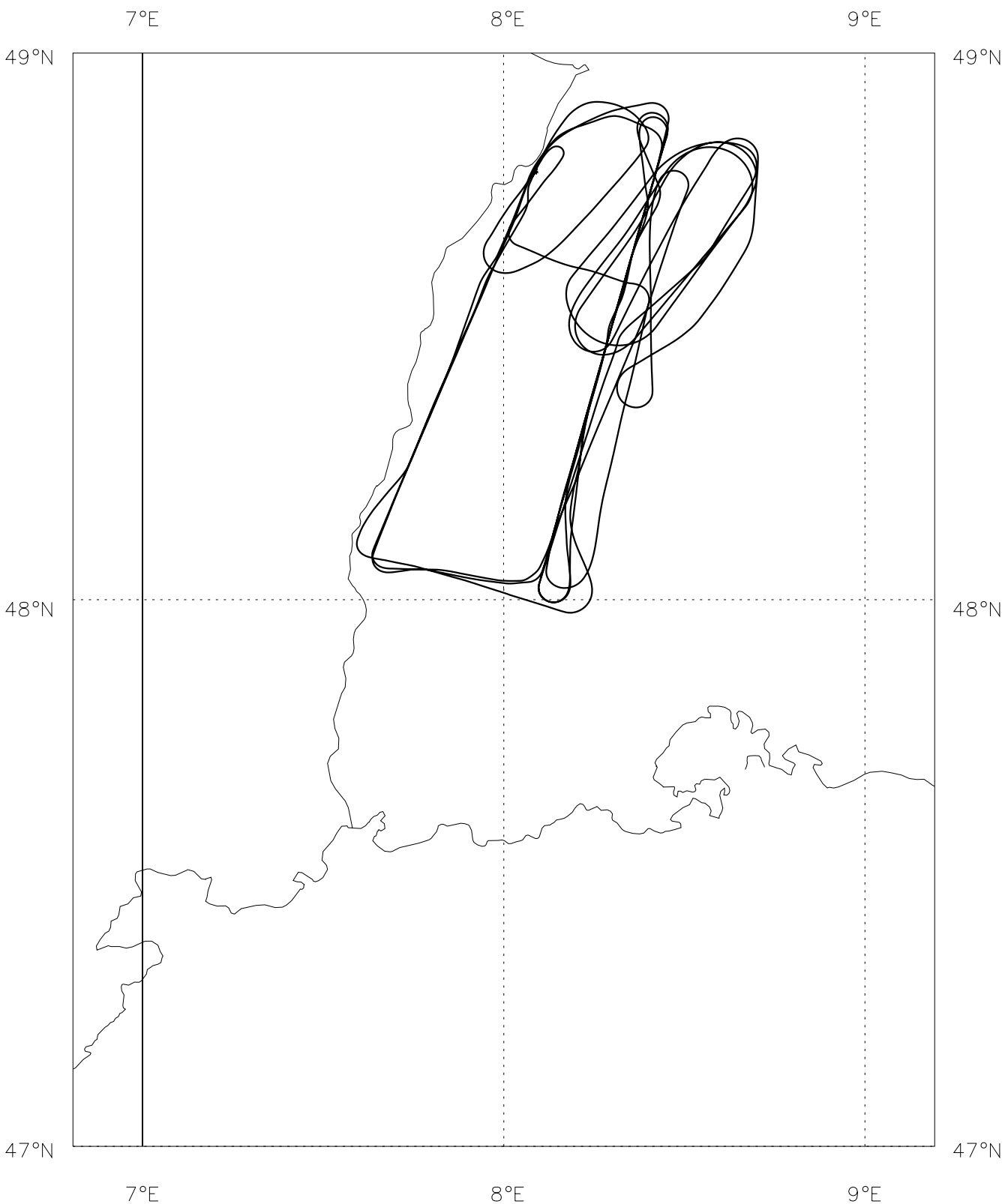
FLIGHT SUMMARY

Flight No B312
Date: 26 July 2007
Project: COPS
Location: Baden Baden

Start Time	End Time	Event	Height (s)	Hdg Comments
----	----	-----	-----	--- -----
093625		Start-Up	0.35 kft	151 8'46.90N, 8'05.35E
105234		T/O	6.0 kft	042 Baden Baden
110030		Videos	6.0 kft	040 Start FFC & UFC
110150	110452	Profile 1	6.0 - 2.5 kft	336 6k', Q1015 2.5k'
110452	111939	Run 1	2.5 kft	215 2.5k'
112051	112354	Profile 2	2.5 - 5.4 kft	085 A-B, 2.5-5.5k'
112524	113710	Run 2	5.5 kft	018 B-C, 5.5k'
113811	114122	Profile 3	5.5 - 2.5 kft	288 5.5-2.5k' to Baden
114123	115515	Run 3	2.5 kft	218 W abeam A
115313		Event	2.5 kft	221 Deviate west
115556	120140	Profile 4	2.5 - 9.4 kft	112 2.5-FL95 to B
120339	120741	Profile 5	9.5 - 5.5 kft	333 Towards C
120742	121555	Run 4	5.5 kft	014 Towards C
121653	122025	Profile 6	5.5 - 2.5 kft	260 C to Baden
122025	123420	Run 5	2.5 kft	216 Baden to A
123140		Videos	2.5 kft	203 Change tapes
123515	123814	Profile 7	2.4 - 5.4 kft	097 A-B
123949	125048	Run 6	5.5 kft	025 B-C, 5.5k'
124721		Event	5.5 kft	018 Over Murg Valley Site
125339	125806	Profile 8	5.5 - 9.5 kft	183 From 5.5k' twds M Q1014
125559		Event	7.6 kft	184 Over Murg Valley Site
130055	130354	Profile 8	9.5 - 12.0 kft	058
130216		Event	10.8 kft	047 Into dust layer
130409	130701	Profile 8	12.0 - 14.5 kft	028
130834	131401	Profile 8	14.5 - 20.0 kft	220
131619	131827	Profile 8	20.0 - 22.0 kft	026 More plumes above
131844	132259	Profile 8	22.0 - 26.0 kft	028
132323	133458	Profile 9	26.0 - 15.0 kft	223
133521	133635	Profile 10	15.5 kft	212
133736	134347	Run 7	15.5 kft	219 In the dust
134404	134459	Profile 11	15.4 - 14.6 kft	037
134500	134953	Profile 11	14.6 - 10.0 kft	035
134953	135459	Run 8	10.0 kft	216 In dust layer
135436		Event	10.0 kft	231 Over Murg Valley Site
135459	135953	Profile 12	10.0 - 5.5 kft	231 In dust layer 5.5k' Q1013
135954	140324	Run 9.1	5.5 kft	199 5.5k' Q1013
140503	141735	Run 9.2	5.5 kft	007
140631		Videos	5.5 kft	005 Change tapes
141921	143343	Run 10	5.0 kft	180 5k' , C-B
143525	144824	Run 10.2	5.0 kft	003 B-C
145017	150415	Run 11	5.5 kft	169 C-B, 5.5k',Q1013
151107	151810	Run 12	5.5 - 5.6 kft	012 Supersites,5.5k' Q1012
151319		Event	5.6 kft	013 Over Murg Valley Site
151605		Event	5.6 kft	278 Over Hornisgrinde
151753		Event	5.6 kft	288 Over Achern site
152419		Land	0.45 kft	045 Baden Baden
152916		Shutdown	0.45 kft	160 48'46.91N, 8'05.35E



B312 Track 26-JUL-07



Scientific Aims: The goal of UK-COPS is to determine the properties of the aerosols that will likely be ingested into the convective clouds that form over the Black Forest mountains and to understand the formation and growth of ice and precipitation in these clouds. We wish to examine:

- the properties of the representative aerosol particles in the clear air that are transported into the convective clouds
- the concentration and size of cloud droplets just above cloud base
- the formation of the first ice due to primary nucleation on ice nuclei (IN)
- the development of ice via secondary processes such as the Hallett-Mossop process, in which new ice particles are generated during the riming growth of ice particles
- other secondary ice production processes, such as evaporative break-up;
- the production of supercooled raindrops and their role in the glaciation process
- the dependence of these processes on the dynamics of the cloud
- the production of precipitation

There will either be 2 flights per day: one in clear air to measure the properties of the aerosols and one later in the convective clouds; or the two parts will be flown in a single flight. Measurements will be made in cumulus clouds when their tops are about 0°C through to when the tops have grown to about -20°C.

Weather conditions:

Developing showers over the Black Forest mountains, Germany, within Box A and probably B.

Safety: Regions that paint RED on the aircraft weather radar should be avoided. No flight into clouds known to be producing lightning. There may be coordination with the DO-128 in Boxes A and B. The French and German Falcons may also be operating in the area.

Key instruments and their operation:

Basic meteorology

- Rosemount temperatures, GE hygrometer
- GPS, INU, turbulence probe. When in supercooled liquid water, Flight Manager or PIs should monitor turbulence probe and calibrated differential pressures for signs of icing (cessation of variability on signal).

Cloud Physics/Aerosol

- FFSSP, 2DC, 2DP, PCASP, CDP, CIP, SID-1 and SID-2. Normal monitoring to ensure correct operation. Operator should note particular features of interest eg. high concentrations, appearance of pristine ice crystal habits, appearance of large drops ($d > 100 \mu\text{m}$) in 2D imagery when above freezing level.
- CPI as above
- J-W LWC and Nevzorov LWC/TWC. Where straight/level and in clear air, these should be zeroed/calibrated and a note made in the Flight Managers log.
- TWC - profile ascents/descents should avoid cloud if possible
- AMS -
- CVI - below cloud base, normal operation is in aerosol mode; above cloud base, normal operation is in CVI mode
- VACC - in straight and level clear-air, 10 min runs; during cloud work and profiles, single temperature.

Sortie Brief: COPS – Convective and Orographically-induced Precipitation Study FINAL
Flight Number: B312
Date: 26 July 2007
Mission Scientists: Hugh Coe, Keith Bower
TO Time: 12:50 local
Box activated: 14-17 local
Other a/c: Possible: DO-128 (Coord with 146) and French Falcon and DLR Falson

Sortie Aims: To measure properties of aerosols in the clear air and the dev of convective clouds.

Sortie Location: Clear air in Rhine Valley and in convective clouds over B. F. mountains. Leg over supersites.

Sortie Summary:

1. Characterise properties of aerosols in clear air at low levels.
2. Penetrate cumulus clouds preferably near the top of the cloud in the updraught. All cloud penetrations should be with *wings level*. Two principal options are:
 - A. stationary cloud or system of clouds;
 - B. several cumulus clouds either in area (low wind) or passing through the area.
3. Characterise properties of aerosols in detrainment layers around cloud.
4. Overfly supersites M, H and R.

Sortie Detail:

1. Out-of-Cloud: All changes in altitude at standard rates (1000 ft/min).
 - 2 x Rhine Valley aerosol legs (70 mins)

2. Cloud work:

Note an important feature is to ascend with tops. This requires a non-standard ascent as fast as possible. Contact DO-128 on COPS frequency. Relay cloud top info to the DO-128.

Option A: Isolated developing clouds – ascend with the clouds near their top. All penetrations at constant altitude.

- A.1 Proceed to about 0°C or top of cloud.
- A.2 Adjust altitude to about 1000 ft below cloud top and penetrate cloud. The penetration should be made at a constant azimuth and altitude if possible. It is important to penetrate the growing turret in the updraught region. A few seconds after clearing cloud, turn and ascend for return to same region of cloud as quickly as possible using procedure turn.
- A.3 Repeat A.2, ascending with the top (if appropriate) at the end of each penetration out of cloud, until FL200 or FL240, or cloud becomes too developed.
- A.4 Repeat A.1 - A.3 for a new developing cumulus, go to **Option B**, or exit box.

Option B: Many developing cumulus clouds – sample clouds at constant altitude.

- B.1 Proceed to 0°C
- B.2 Commence 10 min runs (turning where appropriate) in along shear direction. Adjust track to randomly sample the updraught regions of growing turrets.
- B.3 Ascend to -5°C (i.e. approximately 3500 ft) and repeat above for 10 min.
- B.5 Repeat for -10°C, -15°C and -20°C if possible.

3. Detrainment layers

Proceed to level where cloud is being detrained from cloud and either make penetrations or circle around the cloud.

4. Leg over supersites Murg Valley (M), Hornisgrinde (H) and Achern (R) at about 5500 ft if in clear air. (15 min). Please make SATCOM phone call to A: Stephen's mobile (0163 8064064) and B: Ops Centre (07229 66 2550, or 2551) 15 mins before overpass of Supersites.

Mission Scientist's Debrief Sheet

“A mayhem of Mission Scientists”

Flight B312

26th July 2007

Summary of the weather conditions:

The high pressure ridge that built over the COPS region on the 25th July moved eastward towards central Europe. The centre of a low pressure system positioned over the UK and an associated front was over France during the day. In the morning before the flight the atmosphere was cloud free. Soundings suggested that the mid level troposphere was convectively unstable, should convection develop it was likely to propagate rapidly to 200 mbar. However, several inversions at low level and a dry incursion indicated that convection may have been inhibited later that day. Bets were taken as to whether convection would be initiated in the afternoon and Dr Gadian broke the bank and placed a euro on convection, a poor investment as it turned out. The flight took off in clear air, with only a very few cumulus clouds over the hills. These did not develop during the flight and dissipated. Upper level cloud was visible to the west by the end of the operating period in advance of the frontal system.

Scientific Aims;

The flight aimed to probe the possibility of vigorous convection over the western edge of the Black Forest region to the east of the Rhine that may develop throughout the afternoon. The microphysical properties of the developing clouds were to be probed as they developed with time. Aerosol characterisation legs in the Rhine valley were also to be conducted to characterise the aerosol input into the Black Forest valleys feeding the convective clouds.

Points defined:

Point EDSB (48 46' 8"N, 8 4' 8"E) Karlsruhe/Baden-Baden; Point A (48 05'N, 7 38'E); Point B (48 2'N, 8 6'E); Point C (48 51'N, 8 27'E); predefined box A and B were activated between 1300Z and 1600 Z.

Summary of the flight:

An initial low level leg over the central Rhine Valley between EDSB and Point A was conducted. The profile showed that a strong inversion was present at 5000' over the Rhine valley and the air was very dry above that level. The aerosol loading was moderate down the run from EDSB to point A with scattering coefficients between 30-40 Mm⁻¹. The majority of the aerosol appeared to be organic in composition. The leg from point B to point C showed that the aerosol and pollution was correlated with venting from the BL as shown by the in situ thermodynamic data. Two circuits of the legs EDSB-A-B-C were carried out. No convective cloud was observed to penetrate this dry layer and the cloud appeared to be dissipating. A profile was conducted above point B during the second circuit to the maximum permissible altitude of 9500'. This showed that the dry layer was not diminishing and it appeared unlikely that convective activity would develop in the afternoon. However, the profile showed the presence of a layer of large particles, probably dust, in a layer centred at 7000', a further layer was observed to be present above. A third circuit of EDSB-A-B-C was conducted and on completion the predefined boxes A and B were entered from 5500' to allow a profile climb through the dust layers. This was above the ARM site in the Murgtal Valley. Three dust layers at 7500', FL100 and FL130 were present. These layers were very dry and showed no correlation with any pollution tracer. Above these several pollution layers were present. Each of these was thin but the nephelometer showed the particles were small and were correlated with CN and CO. The profile was terminated at FL260. On the descent, one of the pollution layers and one of the dust layers were penetrated (SLRs at FL155 and FL100). After descent out of box A, a series SLRs along the ridge line B-C were conducted in both S-N and N-S directions to sample mixing along the hill crest. Two of these runs were conducted at 5000' and two at 5500'. Valley pollution containing air with high O₃ and secondary particles was shown to be highly correlated with the updrafts which contained warm, moist air. A single mixing line was observed along this run and there was some evidence of fine particle enhancement in the cleaner air aloft. A run above the supersites was conducted before landing.

Hugh Coe 27/7/07

Mission Scientist's Log

Flight No B312 Date 26/7/07 Name HUGH COE

Page 1 of 6

Time (Z)	Run	Altitude (ft)	Wind direction/speed °/kts	Position	Comments
					PRE FLIGHT PLANNING MEETING: DLR Falcon 0845 UT (over)
					F Falcon 0800 UT (BB)
					D0128 0900 UT (BB)
					RAE 1050 UT (BB)
					Box 12Z -152. 152
					ACTIVE
					Pre Take off: Goplin in pos
					free - typical
10:51Z					T/O.
					Up to 7000 ft for mists
					Cloud free mostly see very
					small cum over hills of B Forest
					but small. Cum now
					building to E ahead of
					the advancing front as
					yesterday's high press ridge
					moves to east.
					Very little overhead cloud
					at moment.
					Convective cloud more
					visible over Vosges but
					still not at present
					penetrating the inversion.
	A				→ 2500 ft to BB
	RUN1	2560 ft	211kts 2ms	Point BB	2500 ft SB → Pt A
			211g		

Mission Scientist's Log

Flight No B.312 Date 26/7/67 Name MUGH COE

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Time (Z)	Run	Altitude (ft)	Wind direction/speed °/kts	Position	Comments
11:08:43					Large inversion at 5000' Very dry immediately above
11:17:33					Running down Rhine at 2500 ft nephelometer scrub shows light back blue ~ 8 -40 Mm ⁻¹ up to 45 and 48.4 - 48.5° N.
11:19:39	END R1	2500 ft	240° 2 m/s	48° N 7° 36' E	
11:20:51	R2		213° 8 m/s	A → B	A → B at 5500'
11:23:32	END R2	5500 ft			5500 at point B
11:25:24	R2	5500 ft		48° N 8° 56' E	re-boarding N B → C
					The deep PT/T shows cloud with
11:37:10	R2 end	5500 ft			Point C end of run.
					Stopped also back of inversion

Stopped along top of inversion
~~at~~ ~~was~~ all the way along
 the run seeing intermittent
 coming of "white" air

Mission Scientist's Log

Flight No ³¹² ~~B-3~~ Date ^{26/7/77} ~~26/7/77~~ Name ^{HUGH COF} ~~.....~~

Page ³ of ⁶

Time (Z)	Run	Altitude (ft)	Wind direction/speed °/kts	Position	Comments
11:38:00	P2	5500 - 2500 ft			Point C → BB descent
					Rising above clouds
					regia but cloud
					developing to NE of
					base A and also over Vages
11:41:23	end R3 start R3	2500 ft	Hdg 214 4.4 m/s dd 23	Point A B.B.	Now at BB start S down Rine
					Hang Gliders getting little
					lift
11:51:12					Decided to probe from
					point A to B aiming at
					B at 9500 ft.
					So altered R3 to crest
					a little so can start a
					profile to 9500 ft
					2500 ^{aiming} above Point B.
11:55:30	end R3	2500'		120.7.3E	A little W of Point A
11:57:57	P5 start	2500 to 1095			
					Aerosol in SR R3 similar
					to R1 but without
					2 plumes
12:01:40	P5 end	9500 ft → 2500			end profile descent
					profile again to Point B

Mission Scientist's Log

Flight No B.312 Date 26/7/07 Name HUGH COLE

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Time (Z)	Run	Altitude (ft)	Wind direction/speed °/kts	Position	Comments
12:07:47	R4	5500 ft			B → C. northwards up B Foot
12:15:55	R4 end				
12:16:53	P6	5500 - 2500 ft			From C to BB
12:20:25	R5	2500 ft			From BB to A
12:34:19	R5	2500 ft	1/6 m/s 274 m/s	POINT A	Now very clear
					Can dissipating
12:35:14	P7	2500 - 5500		PTA → PTB	few curies dust layer still vis but thin.
					rough scallies now
					lower 25-30 mm ⁻¹ (blue)
					mainly organic but
					secondary and wing on
					B. forest logs
					Also a CN covered with O ₂
					and Td showing deterioration
					out of valleys in B forest.
12:38:44	end P7	5500 ft	T 12.40 T _a 6.77 dd 213	PTB	bleeding N.
					will then turn towards
12:39:49	R6	5500 ft			Marginal and then
					perform a profile to 9500 ft
					above dust layer
					Remains clear and clear
					but some Cu over Vosses
					though no penetration.
12:47:21		5500 ft		40m SE	Quaternary Marginal Valley site.
12:53:39	P8	5500 ft - 9500 ft			Profile through Miller (Marginal Valley Site) site
					and hopefully dust layer at 7000 ft

Mission Scientist's Log

Flight No B..... Date..... Name.....

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[illegible]

Mission Scientist's Log

Flight No B.312

Date 26/7/07 Name MUGH CCS

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Time (Z)	Run	Altitude (ft)	Wind direction/speed °/kts	Position	Comments
14:33:43	R10.1	5000 ft	Hdg 3° 6ms ⁻¹		ed
14:35:25	R10.2	5000 ft	T 14.9°C T _a 4.5C		leg B to C at 5000'
			217 deg.		
14:48:24	R10.2	5000 ft			Now at point C.
14:53:14	R11	5500 ft			Point C south to point B
					In these legs the
					flight is a rising
					line is straight
					and clear; the pollution
					follows the coast
					and there is considerable
					variability in the vertical
					wind speed. Along leg
					that is consistent over
					all four runs.
					The aerosol is secondary
					in nature as it is
					pumped out of valleys
15:04:15	R11.2				up to 7500' for
					safety pre landing
					then descend to 5500'
					for Super site overpass
15:11:07	R12	5500 ft			for
15:11:07		5500 ft			Overpass Mike (Mistral)
15:11:07		5500 ft			Overpass Hornsgraben
15:18:10	ended run 12	5500 ft			Overpass Achen.
15:25					

T/O

end of project
science

CLOUD PHYSICS LOG Flight B312

Date: 26/07/07		Operator: KFT		DRS Time: 09:35:00		DAU1 Time: +0		DAU2 Time: +0		DAU3 Time: +0		Aux1 Time: +0		Aux2 Time: +0		Page 1 of 1	
G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		
10:54:45	293	0.08	4	5	1	0		0									FL035
10:55:28	165	0.08	4	2	0	0		0									FL050
10:56:03	23	0.07	4	0	0	0		0									FL060
11:01:30	218	0.08	5	1	0	0		0									
11:02:33	352	0.08	5	8	0	0		0									FL050
11:03:22	343	0.08	5	2	1	0		0									FL040
11:04:12	750	0.08	5	5	1	0		0									FL030
11:04:52	607	0.08	5	8	0	0		0									FL025 START RUN 1
11:07:00	621	0.08	5	2	0	0		0									FFSSP base value increased
11:10:00	607	0.08	5	2	1	0		0									FFSSP SYNCH'ED
11:15:00	601	0.08	6	2	1	0		0									
11:17:00	490	0.08	6	5	1	0		0									
11:19:00	558	0.08	7	5	1	0		0									
11:19:39	561	0.08	7	2	1	0		0									END RUN 1 @FL025
11:20:51	585	0.08	7	10	1	0		0									START PROFILE 2
11:21:25	565	0.08	7	5	1	0		0									FL030
11:22:28	673	0.09	8	8	0	0		0									FL040
11:23:24	434	0.08	8	2	1	0		0									FL050
11:23:53	377	0.08	8	2	0	0		0									FL055 END PROFILE 2 AT B
11:25:25	484	0.08	8	5	0	0		0									START RUN 2
11:27:00	339	0.09	8	7	0	0		0									AMS seeing lots
11:29:00	103	0.07	8	0	0	0		0									
11:31:00	314	0.09	8	2	1	0		0									PCASP v variable
11:33:00	96	0.09	8	8	1	0		0									
11:35:00	363	0.08	8	2	1	0		0									
11:37:12	351	0.08	9	5	0	0		0									END RUN 2 @ C
11:38:11	118	0.08	9	7	1	0		0									START PROFILE 3 FL055
11:39:40	300	0.08	9	2	1	0		0									FL040
11:40:43	555	0.08	9	8	1	0		0									FL030
11:41:24	567	0.08	9	3	1	0		0									END P3 @ B FL025 START RUN 3
11:43:00	282	0.08	9	2	1	0		0									
11:45:00	578	0.08	9	5	1	0		0									
11:47:00	609	0.08	9	2	1	0		0									
11:49:00	521	0.08	10	5	1	0		0									11:50 2DC IMAGE - NOISE
11:51:00	515	0.08	10	2	0	0		0									
11:53:00	496	0.08	10	2	0	0		0									
11:55:00	492	0.08	11	5	1	0		0									END RUN 3 W of A
11:56:21	653	0.08	11	5	1	0		0									FL030
11:57:10	399	0.08	12	8	0	0		0									FL040
11:58:02	33	0.06	12	0	0	0		0									FL050
11:58:51	22	0.07	12	0	0	0		0									FL060
11:59:43	28	0.08	12	2	1	0		0									FL070
12:00:31	9	0.10	12	0	0	0		0									FL080
12:01:17	11	0.07	12	0	0	0		0									FL090
12:01:40	17	0.08	12	0	0	0		0									FL095 END PROFILE 4
12:03:38	23	0.07	12	1	1	0		0									START PROFILE 5

CLOUD PHYSICS LOG Flight B312

Date: 26/07/07		Operator: KFT		DRS Time: 09:35:00		DAU1 Time: +0		DAU2 Time: +0		DAU3 Time: +0		Aux1 Time: +0		Aux2 Time: +0		Page 2 of 2	
G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		
12:04:30	33	0.08	12	0	0	0		0									FL090
12:05:11	22	0.10	12	9	0	0		0									FL080
12:06:10	17	0.07	12	2	0	0		0									FL070 BRIEF SPELL OF R=0.14 PCASP
12:07:01	70	0.08	12	1	0	0		0									FL060
12:07:42	150	0.07	12	0	1	0		0									FL055 END P5, START RUN 4
12:09:00	302	0.08	13	2	1	0		0									
12:11:00	235	0.08	13	2	1	0		0									
12:13:00	268	0.08	13	8	1	0		0									
12:15:00	396	0.08	13	5	0	0		0									
12:15:55	320	0.09	13	2	2	0		0									END RUN 4
12:16:53	141	0.08	13	0	0	0		0									START PROFILE 6 @ FL055
12:17:27	332	0.08	13	2	0	0		0									FL050
12:18:33	341	0.08	13	2	1	0		0									FL040
12:19:40	585	0.08	13	2	1	0		0									FL030
12:20:24	467	0.08	13	7	0	0		0									FL025 END P6, START R5
12:22:00	562	0.08	13	7	1	0		0									
12:24:00	639	0.08	13	5	1	0		0									
12:26:00	539	0.08	14	8	1	0		0									
12:28:00	450	0.08	15	7	1	0		0									
12:30:00	419	0.08	15	5	1	0		0									
12:32:30	403	0.08	15	7	1	0		0									
12:34:20	609	0.08	15	2	1	0		0									END R5 AT POINT A FL025
12:35:15	390	0.08	16	2	1	0		0									START P7
12:35:57	371	0.08	16	5	2	0		0									FL030
12:36:58	366	0.09	16	2	1	0		0									FL040
12:37:52	350	0.08	16	2	1	0		0									FL050
12:38:14	410	0.08	16	10	2	0		0									FL055 END P7
12:39:50	358	0.08	16	0	0	0		0									START R6 B-C
12:42:00	391	0.08	16	8	0	0		0									
12:44:00	290	0.08	16	0	0	0		0									
12:46:00	225	0.09	16	2	1	0		0									
12:47:20	210	0.09	16	2	1	0		0									OVER
12:50:00	329	0.08	16	2	1	0		0									
12:50:48	315	0.08	16	2	1	0		0									END RUN 6
12:53:00	416	0.09	16	2	1	0		0									
12:53:40	266	0.08	16	2	1	0		0									START P8 @ FL055
12:54:18	171	0.08	16	2	0	0		0									FL060
12:55:25	364	0.09	16	2	2	0		0									FL070
12:55:52	24	0.10	16	2	0	0		0									FL080
12:56:30	26	0.14	16	10	0	0		0									FL085
12:57:34	17	0.10	16	1	0	0		0									FL090
12:58:06	17	0.08	16	2	0	0		0									FL095 END PROFILE 8
13:00:00	17	0.09	16	1	0	0		0									
13:00:57	21	0.07	16	1	0	0		0									START PROFILE 8
13:01:33	20	0.22	16	20	2	0		0									FL100
13:02:30	16	0.08	16	0	0	0		0									FL110

CLOUD PHYSICS LOG Flight B312

Date: 26/07/07			Operator: KFT		DRS Time: 09:35:00		DAU1 Time: +0		DAU2 Time: +0		DAU3 Time: +0		Aux1 Time: +0		Aux2 Time: +0		Page 3 of 3	
G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks	
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC			
13:03:35	20	0.08	16	0	0	0		0									FL120 END PROFILE 8	
13:04:09	19	0.08	16	0	0	0		0									START PROFILE 8	
13:05:25	10	0.08	16	8	0	0		0									FL130 PCASP radius v variable	
13:06:30	11	0.18	16	2	0	0		0									FL140	
13:07:05	40	0.20	16	0	0	0		0									FL145 INTERRUPT PROFILE	
13:09:00	60	0.10	16	1	0	0		0									FL150	
13:10:00	39	0.08	16	0	0	0		0									FL160	
13:11:00	77	0.09	16	0	0	0		0									FL170	
13:11:59	28	0.08	16	0	0	0		0									FL180	
13:13:00	45	0.09	16	0	0	0		0									FL190	
13:14:00	17	0.08	16	0	0	0		0									FL200	
13:15:00	8	0.12	17	0	0	0		0									HOLD AT FL200	
13:18:26	12	0.08	17	0	0	0		0									FL220	
13:19:53	10	0.07	17	0	0	0		0									FL230	
13:20:53	5	0.10	17	0	0	0		0									FL240	
13:21:57	9	0.15	17	0	0	0		0									FL250	
13:22:59	11	0.09	17	0	0	0		0									FL260 END PROFILE 8	
13:23:23	11	0.09	17	1	0	0		0									Start profile 9	
13:24:29	11	0.09	17	0	0	0		0									FL250	
13:25:35	10	0.11	17	0	0	0		0									FL240	
13:26:31	14	0.09	17	0	0	0		0									FL230	
13:28:25	12	0.09	17	0	0	0		0									FL210 FFSSP BASE/ANNULUS INCREAS'D	
13:29:24	31	0.08	17	0	0	0		0									FL200	
13:30:36	62	0.10	17	0	0	0		0									FL190 POLLUTION LAYER	
13:31:45	20	0.11	17	0	0	0		0									FL180	
13:32:50	54	0.10	17	0	0	0		0									FL170 POLLUTION Layer	
13:33:59	37	0.08	17	0	0	0		0									FL160	
13:34:57	31	0.08	18	0	0	0		0									FL150	
13:35:35	100	0.10	27	1	0	0		0									FL152	
13:36:26	37	0.08	460	0	0	0		0									FL160 FFSSP BASEINCR. SYNCH'D	
13:37:41	62	0.09	1501	1	0	0		0									FL155	
13:39:00	121	0.09	1501	1	0	0		0									PCASP 80-120/CC	
13:40:30	60	0.09	1502	0	0	0		0										
13:41:00	23	0.10	1502	0	0	0		0										
13:42:00	17	0.10	1503	0	0	0		0										
13:43:00	23	0.09	1506	0	0	0		0									TENUOUS POLLUTION LAYER	
13:43:47	34	0.09	1509	0	0	0		0									END RUN 7, START PROFILE 11	
13:44:30	166	0.11	1514	0	0	0		0									FL150	
13:45:41	16	0.08	1518	0	0	0		0									FL140	
13:46:42	18	0.22	1520	8	0	0		0									FL130 DUST LAYER	
13:47:19	28	0.15	1541	20	1	0		0									FL125	
13:47:50	13	0.08	1551	0	0	0		0									FL120	
13:48:43	19	0.20	1580	20	0	0		0									FL110	
13:49:50	38	0.25	2640	20	0	0		0									FL100 FFSSP RESTARTED	
13:52:00	11	0.0	5	0	1	0		0										
13:52:55	23	0.25	0	20	1	0		0										

CLOUD PHYSICS LOG Flight B312

Date: 26/07/07		Operator: KFT		DRS Time: 09:35:00		DAU1 Time: +0		DAU2 Time: +0		DAU3 Time: +0		Aux1 Time: +0		Aux2 Time: +0		Page 4 of 4	
G.M.T	PCASP		FFSSP	SID1	SID2	2D2-C		2D2-P		CIP25			CIP100			Habit	Remarks
	Conc/cc	Mean R	Block TX	Count	Count	Conc/L	Max size	Conc/m3	Max size	Conc m3	Max size	LWC	Conc m3	Max size	LWC		
13:54:00	17	0.20	0	20	1	0		0									
13:54:36	21	0.08	0	1	1	0		0									
13:55:00	14	0.08	0	0	0	0		0									END RUN 8, START R12 FROM FL100
13:55:55	14	0.09	0	1	0	0		0									FL090
13:56:50	22	0.08	0	5	0	0		0									FL080
13:57:41	32	0.12	0	8	0	0		0									FL075
13:58:11	15	0.08	0	5	1	0		0									FL070 FFSSP BASE INCREASED
13:59:11	24	0.07	0	0	0	0		0									FL060
13:59:53	71	0.08	0	1	0	0		0									FL055 END PROFILE, START RUN 13
14:00:00	273	0.08	0	2	1	0		0									
14:02:00	261	0.08	4	8	1	0		0									PCASP UPTO 500/CC
14:02:30	356	0.08	44	2	1	0		0									
14:03:30	288	0.08	183	1	1	0		0									FFSSP RESTARTED
14:06:00	352	0.08	0	1	0	0		0									
14:09:00	33	0.08	0	0	0	0		0									
14:10:00	44	0.08	0	5	0	0		0									
14:11:00	358	0.08	0	10	1	0		0									
14:12:00	134	0.08	0	5	1	0		0									
14:13:00	278	0.08	0	2	1	0		0									
14:14:00	257	0.08	0	2	1	0		0									
14:15:00	263	0.08	0	2	1	0		0									
14:17:00	338	0.08	0	2	1	0		0									END RUN9.2
14:18:22	374	0.09	0	2	1	0		0									FL050
14:19:22	326	0.08	0	2	1	0		0									START RUN10 AT FL050
14:21:00	438	0.08	0	4	1	0		0									
14:23:00	356	0.08	0	4	1	0		0									
14:25:00	453	0.08	0	2	1	0		0									
14:30:00	28	0.08	1	0	0	0		0									
14:32:00	304	0.08	1	2	1	0		0									
14:33:43	366	0.08	1	2	1	0		0									END RUN 10.1, FL050
14:35:26	439	0.08	1	4	1	0		0									START RUN 10.2
14:37:00	235	0.08	1	2	1	0		0									
14:39:00	21	0.07	1	0	0	0		0									PCASP conc seems to correl with turbulence
14:41:00	138	0.09	1	2	1	0		0									
14:43:00	153	0.08	1	2	0	0		0									
14:45:00	286	0.08	1	4	1	0		0									
14:47:00	305	0.08	1	4	1	0		0									
14:48:25	172	0.08	2	2	0	0		0									END RUN 10.2
14:50:18	165	0.08	2	1	0	0		0									START RUN 11.1 AT FL055
14:52:00	342	0.08	2	1	0	0		0									
14:54:00	193	0.08	2	2	1	0		0									
14:57:00	384	0.08	2	2	1	0		0									
15:02:00	156	0.08	2	4	0	0		0									PCASP Vref ~8.1V
15:04:00	127	0.08	3	2	1	0		0									End run 11
15:05:00	18	0.09	3	0	0	0		0									FL070
15:09:00	30	0.13	3	5	0	0		0									FL075

CLOUD PHYSICS LOG Flight B312

[illegible]

CLOUD PHYSICS PROCESSING LOG

Flight number: B312 **T/O:** 10:52:34
Date of flight: 26/07/07 **Land:** 15:24:19

A) FFSSP PROCESSING		To Exeter
Processing Stage	Done?	Comments
1) Transfer *.txt files from DVD to processing PC Bnnn_FFSSP_hh.txt for each hour of data Bnnn_FFSSP_HVMS.txt		hh = Last sec processed =
2) FTP the files (ascii) from the PC to directory PMSDATA: on FLOODS		File size =
3) FLOODS> RUN MRFB:[PMS.FAST_FSSP]FFSSP_EXTRACT_TAS a) Flight number: Bnnn b) Path name: MFDDATA:Bnnn_MFDX c) Output directory: PMSDATA: d) Start time: 0 if unknown (see comment box) e) End time: 240000 if unknown		Use time just before/after take-off/landing. If T/O /landing just after/before the hour, ensure start/end time is before/after the hour if there is an FFSSP_hh.txt file for that hour.
4) FLOODS> RUN MRFB:[PMS.FAST_FSSP]FFSSP_PROCESS_TXT a) Flight number: Bnnn b) Directory: PMSDATA: c) TAS in processing: Y d) Vel threshold (clicks) 0 e) Calibration file: Use the most recent calibration file. Format FFSSP_CALddmmyyyy.txt Calibration files to be stored in MRFB:[PMS.FAST_FSSP] f) Adjust FFSSP time Y/N g) If Y, enter value to add to data time (seconds)		Total glitches = Sec file written ok? Note calibration file used Yes only if gross errors occur in FFSSP time eg; ~ 1hour
5) FLOODS> WAVE a) WAVE> write procffssp_to_m5,'pmsdata:Bnnn_procffssp.dat', 'mfddata:Bnnn_mfdX','pmsdata:Bnnn_m5procffssp',/auto b) WAVE> exit		Use PVWAVE for this section Note time correction applied to FFSSP by /auto =
6) FLOODS> MODIFY a) Modifying datasets: pmsdata:Bnnn_m5procffssp b) Dataset: mfddata:Bnnn_mfdX c) New dataset: mfddata:Bnnn_mfdY (y=x+1) d) Parameter description file: leave blank to use default		Input file size = M5 output file size =
7) CHECKS: i). Are FFSSP and JW/Nevzorov LWC synchronized in time? In flight_plot, parameters JW LWC para 535 Nevzorov LWC para 602 FFSSP LWC para 1202 ii). If not, repeat from step 5b replacing /auto with addt=x which adds x+20 secs to FFSSP time.		Synchronized?

CLOUD PHYSICS PROCESSING LOG

Flight number: B312
Date of Flight: 26/07/07

B) 2D PROCESSING		REPROCESS +1hr
Processing Stage	Done?	Comments
1) Transfer Bnnn.dat file from CD/DVD to PC	Y	
2) Zip up file on PC (Bnnn.zip)	Y	
3) FTP the zipped file (binary) from the PC to the directory SEADAS_DATA:[SEADAS_DATA] on FLOODS	Y	11500 blocks
4) Log on to FLOODS		
5) Unzip SEADAS_DATA:[SEADAS_DATA]Bnnn.zip	Y	Size of Bnnn.dat = 118606
6) FLOODS> WAVE WAVE> CONVERT_SEADAS_FILE a) Input file: SEADAS_DATA:[SEADAS_DATA]Bnnn.dat b) Output file: SEADAS_DATA:[SEADAS_DATA]Bnnn_seadas.dat WAVE> exit	Y	Use PVWAVE for this section Blocks read = 34488 Blocks written = 34488 Bad reads = 0
7) FLOODS> RUN MRFB:[PMS.SEADAS]READM200_FILE a) Default directory: PMSDATA: b) Flight number: Bnnn c) Disk file name: SEADAS_DATA:[SEADAS_DATA]Bnnn_seadas.dat d) Comment string: e) Start time: <i>0 if unknown (T/O – 5 min)</i> f) End time: <i>240000 if unknown (Land + 5 min)</i> g) Read 2DC: Y h) Read 2DP: Y i) Secondary data: Y j) FSP-SYNC: Y k) cmd.str: Y l) Auto time correction: N m) Full length secondary: N	Y	Start = 104500 End = 153000 Ignore error message scroll (vestigial error from tapes) Are FRW, FSP, IMB, PCA,SEC files in PMSDATA? Y Are they non-zero in size? aux 0 blocks
8) FLOODS> WAVE i). WAVE> imagedisplay a) 2D directory name: PMSDATA: b) Flight number: Bnnn c) File generation no: 0 d) Time from IWC plot: N e) Select probe: (1) 2DC (2) 2DP f) Start time: <i>As in 7e above</i> g) End time: <i>As in 7f above</i> h) Time interval (sec): 5 recommended (0 for all images) ii). WAVE> auto_image a) 2D directory name: PMSDATA: b) Flight number: Bnnn c) Enter date: YYYYMMDD d) Enter start time: <i>0 if unknown (T/O – 1 min)</i> e) Enter end time: <i>240000 if unknown (Land – 1 min)</i> f) Enter time interval (sec) between successive imaged blocks: 10 iii). WAVE> exit to create files iv). FTP ascii *.PS files from PMSDATA: to PC v). Load each into Ghostview or other pdf-converter vi). Output as pdf file (720 dpi resolution), appending name prefix of CORE-CLOUD-PHY_ to converted files	N	2D image display and printing Must be done from FLOODS itself. Note any problems with images No images on 2dc or 2dp Prepare imagery for Core data From own PC again Start = End = FAAM_YYYYMMDD_R0_ Bnnn_2Dx-images.ps Notes on this in instructions

9) FLOODS> RUN MRFB:[PMS.SPEC2D.AUTO]PROCESS2D_AUTO	N	NB. an error message may appear, floating point exception, rerun and use time quoted in error message, repeat until successful. X = Start = End = Time data processed to = 2dproc files present? *.2dc, *.2dp and *.dat
a) Flight number: Bnnn b) Directory: PMSDATA: c) File generation: <i>Hit enter</i> d) Time correction: <i>Time offset of the 2D data</i> e) TAS: Y f) MFD directory: MFDDATA:Bnnn_MFDX g) Probe number: (1) 2DC (2) 2DP (0) Both <i>0 unless either probe known to be faulty</i> h) Start time: <i>0 if unknown (T/O + 30sec)</i> i) End time: <i>240000 if unknown (Land – 30sec)</i> j) Nominal averaging: 0.2 seconds for conversion to M5 k) Particle type 2DC: 8 if known to be in ice cloud 11 if known to be in water cloud l) Particle type 2DP: 8 if known to be in mixed-phase 8 if unknown m) Coefficient choice: 2 n) Output root filename: PMSDATA:Bnnn_PROC2D		
10) FLOODS> WAVE	N	Use PVWAVE for this section
i) WAVE> WRITE_PROC2D_TO_M5, 'PMSDATA:BNNN_PROC2D.DAT', 'PMSDATA:BNNN_M5PROC2D' ii). exit		Error message about HDDR file should be ignored. Records =
11) FLOODS> MODIFY	N	
a) Modifying datasets: pmsdata:Bnnn_m5proc2D b) Datset: mfddata:Bnnn_mfdX c) New dataset: mfddata:Bnnn_mfdY d) Parameter description file: leave blank to use default		X = Y = (X+1)
12) CHECKS:	N	
Are 2DC/2DP IWC of comparable magnitude and well-correlated with Nevzorov TWC? <i>In flight_plot, parameters</i> <i>Nevzerov TWC para 605</i> <i>2DC IWC para 1302</i> <i>2DP IWC para 1312</i>		Correlated?

CLOUD PHYSICS PROCESSING LOG

Flight number: B312
Date of Flight: 26/07/07

C) PCASP PROCESSING		
Processing Stage	Done?	Comments
1) Complete stage 7) in 2D processing Ensures Bnnn_FSP.DAT containing raw PCASP data is written to directory PMSDATA:	Y	
2) FLOODS> RUN MRFB:[PMS.PCASP]PROCPCASP_NEW a) Flight number: Bnnn b) File name: PMSDATA:Bnnn_FSP.DAT c) Root output name: PMSDATA:Bnnn_PROCPCASP Produces PMSDATA:Bnnn_PROCPCASP.DAT (binary) PMSDATA:Bnnn_PROCPCASP.OUT (ascii) d) Minimum size channel: <i>default = 1</i> <i>If smallest size channel are known to be noisy the value of the highest noise free channel to be entered here</i> e) Calibration volume flow rate: <i>Use the most recent value. (1.15ccs⁻¹ Feb 07)</i> <i>Calibration files to be stored in Exeter</i> <i>Entering zero gives default value = 1.0 cm³s⁻¹</i> f) Time correction: <i>Same value as used in 2D processing stage 9d</i> g) Start time: <i>0 if unknown</i> h) End time: <i>240000 if unknown</i>	Y	Min size = 1 Vol flow rate = 1.0 105200 152500
3) FLOODS> WAVE i). WAVE> write_procpcasp_to_m5, 'pmsdata:Bnnn_procpcasp.dat', 'pmsdata:Bnnn_m5procpcasp' ii). WAVE> exit	Y	Use PVWAVE for this section
4) FLOODS> MODIFY a) Modifying datasets: pmsdata:Bnnn_m5procpcasp b) Dataset: mfddata:Bnnn_mfdX c) New dataset: mfddata:Bnnn_mfdY d) Parameter description file: <i>leave blank to use default</i>	Y	X = _tas Y = X+1 = _tas_pcas
5) CHECKS Are PCASP and JW peaks synchronous? <i>In flight_plot, parameters</i> <i>Neph – total blue scatter.</i> <i>PCASP conc para 1550</i>	N	Data present in _tas_pcas Merged OK?

Wet Nephelometer Log

Flight No **B.312**.....

Date **26/07/07**.....

Operator's name: **D. TIDDEMAN**.....

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GMT	Run	Height	Sample flow	Dry neph RH	Wet neph RH	Temp ramp	T _{water}	Remarks
105949	—	—	12.7	18.8	36.2	10°	25°	Humidifier On
11:0657	Run 1	2500	14.2	41.2	36.4	A40°	12°	55.4 39.4
11:1145	"	"	14.1	40.9	68.6	A45°	40°	47.2 31.5
11:1442	"	"	14.1	42.2	81.9	X15°	45°	40.4 28.4
112020	"	"	14.1	41.9	51.3	X15°	25°	Pre heater On 35.0 23.4
112534	Run 2	5500	12.8	38.0	39.5	A45°	15°	50.4 20.7
113511	"	"	9.9	23.6	82.7	X20°	45°	
114127	Run 3	2500	10.9	37.6	46.8	A45°	20°	
114732	"	"	10.9	42.9	86.4	X20°	45°	!
12112084	Run 4	5500	13.6	16.1	32.6	A45°	20°	
122035	Run 5	2500	15.0	39.3	85.0	X15°	45°	
122820	"	"	15.0	39.3	50.8	A45°	15°	
123828	—	5500	13.5	32.4	87.4	X15°	45°	
124315	Run 6	5500	13.5	35.0	58.7	A45°	25°	
124420	"	"	13.6	29.8	86.4	X40°	45°	
125130								Pre Heater Off
130607	Protel	13500	10.2	18.7	73.2	X20°	40°	
1311								Laptop crashed (Blue screen of death)
1324								Laptop booted up and talking
133753		15500	11.4	9.8	33.1	10°		Humidifier On

Wet Nephelometer Log

Flight No **B.....312.....**

Date **26/07/07**

Operator's name: **D. Tiddeman**

Page **2** of **2**

GMT	Run	Height	Sample flow	Dry neph RH	Wet neph RH	Temp ramp	T _{water}	Remarks
134115	Run 7	155	11.3	7.3	25.8	A35°	12°	
135115	Run 8	100	13.7	13.5	56.6	A45°	35°	
135334	"	100	13.7	13.8	81.2	A15°	40°	
140015	Run 9.1	5500	13.8	23.3	40.5	A45°	20°	
140434	Run 9.2	"	13.7	30.5	83.3	A15°	45°	
141130	"	"	13.9	31.8	44.2	A45°	19°	
141810	Run 9.10	5000	13.9	35.4	86.0	A25°	45°	
142316	Run 10	"	14.1	37.3	57.3	A45°	25°	
142750	"	5000	14.0	26.2	88.5	A25°	45°	
143234	"	"	14.0	31.1	57.1	A45°	25°	
143618	Run 10.2	"	13.9	40.3	88.9	A15°	45°	
144214	"	"	14.1	38.6	53.3	A45°	21°	
145030	Run 11	5500	13.8	26.2	87.2	A20°	45°	
145740	"	"	13.7	36.6	51.3	A45°	20°	
150421	"	"	13.7	14.5	89.1	—	45°	Humid. her. opt

B312 CVI log

7/26/07 10:59:37 AM
7/26/07 11:00:21 AM
7/26/07 11:05:14 AM r1 2500ft clear air
7/26/07 11:16:30 AM cloud physics at half pcasp counts
7/26/07 11:19:42 AM eor1
7/26/07 11:25:25 AM r2 @ 5500 clear air
7/26/07 11:37:14 AM eor2
7/26/07 11:41:34 AM r3 2500ft
7/26/07 11:55:21 AM eor4
7/26/07 11:55:34 AM eor3
7/26/07 11:55:49 AM Still clear of cloud.
7/26/07 11:56:15 AM p4
7/26/07 12:04:11 PM profile decent p5 9500ft to ?
7/26/07 12:08:11 PM r4 5500ft
7/26/07 12:16:22 PM eor4
7/26/07 12:20:57 PM r5 2500ft
7/26/07 12:34:28 PM eor 5
7/26/07 12:40:13 PM r7 5500ft
7/26/07 12:40:26 PM oops r6
7/26/07 12:51:05 PM eor6 clear air
7/26/07 12:58:46 PM eo profile at 9500ft
7/26/07 1:02:28 PM
7/26/07 1:23:18 PM fl260
7/26/07 1:23:49 PM profile decent p9 to fl150
7/26/07 1:24:33 PM There has been some thin polution layers all the way up to
26000ft
7/26/07 1:44:30 PM eor & profile decent to 10000ft
7/26/07 1:55:32 PM larger particles seen in polution layer at 10000 run just
finished
7/26/07 2:00:11 PM r9 @ 5500ft
7/26/07 2:02:15 PM
7/26/07 2:03:40 PM eor9
7/26/07 2:17:57 PM eor9.2
7/26/07 2:18:10 PM decent to 5000ft
7/26/07 2:19:41 PM r10 5000ft
7/26/07 2:34:18 PM eor 10.1 5000ft clear air for all run
7/26/07 2:35:48 PM r10.2 5000ft
7/26/07 2:48:47 PM eor 10.2, cling to 5500ft
7/26/07 2:50:46 PM r11 5500ft
7/26/07 3:05:03 PM eor 11, climb before supersite runs and landing.

Flight:

B312

KEY

Not Fitted

Fitted, Not Operated



Duff Data



Minor Problems



OK

Thermometers

Cabin Temperature:

Heimann:

Deiced Temp:

Non-deiced Temp:

Hygrometers

FWVS:

General Eastern:

Johnson Williams:

Nevzorov:

Total Water Probe:

Cameras

Downward Facing:

Forward Facing:

Rearward Facing:

Upward Facing:

Navigation + Aircraft

Cruciform GPS:

GIN Applanix:

INU Honeywell:

Radar Altimeter:

RVSM IAS:

RVSM Static Pressure:

XR5 GPS:

Report Created 20/08/2007
17:28:46

Misc Core

AMTG:

AVAPS:

Cabin Pressure:

Fax machine:

Printer:

S9 Static Pressure:

Satcom C:

Satcom H:

Turb Centre-Static:

Turb Left Right:

Turb Up-Down:

Turb Horizontal Chk:

Turb Vertical Chk:

Weather Radar:

DLUs:

DLU AERACK:

DLU BBR Lower:

DLU BBR Upper:

DLU Core Chem:

DLU Core Consoles:

DLU Port Aft:

DLU Port Fwd:

DLU Stbd Fwd:

Radiometers

Lower:

BBR (clear) Lower:

BBR (IR) Lower:

BBR (red) Lower:

Upper:

BBR (clear) Upper:

BBR (IR) Upper:

BBR (red) Upper:

ARIES:

DEIMOS:

IR Camera:

JNO2 Lower:

JNO2 Upper:

JO1D Lower:

JO1D Upper:

MARSS:

SHIMS Lower:

SHIMS Upper:

SWS:

TAFTS:

Last Updated:

Cloud Probes

2DC:

2DP:

FFSSP:

PCASP:

ADA:

CCN:

CDP:

CIP 100:

CIP 25:

CPI:

CVI:

SID1:

SID2:

Aerosol

CPC 3025A:

Filters 47mm:

Filters 90mm:

Neph - Dry:

Neph - Wet:

PSAP:

AMS:

CPC 3025 (AMS)

INC:

VACC:

CPC 3010A (CVI):

Chemistry

CO Aerolaser 5002:

NOx TE42C:

Ozone TE49C:

Ozone TE49:

SO2 TE43C:

TDLAS (NIR) CH4:

TDLAS (NIR) CO2:

FAGE:

Formaldehyde:

NOxy:

ORAC:

PAN:

PERCA:

Peroxide:

PTRMS:

TDLAS (1C):

WAS Bags:

WAS Bottles:

Misc Non-Core

CASI/ATM:

LIDAR:

LTI:

SAW Hygrometer:



01/08/2007 12:59:21

Faults / Incidents Log

Flight No. B312

Date: 26/07/2007

Instruments

1. Wet Nephelometer – pc crashed around 1316Z Rebooted and working again after ~ 20 minutes.
2. TWC – status light came on at FL260, +2.5C outside, Status word 4091, Para 72 TSAM out of limits (640) , TSAM reading 508 DRS units. Also, Para 75 EVAP 1 below limit (2110), reading 2090 DRSU.
3. Satcom C –occasional messages “satcom not available” when option 5 selected from satcom menu. Otherwise okay.
4. Copsfaam account on Outlook Express not working. Can access account through Internet Explorer okay though.

Aircraft

- 1.

Satcom-H Calls

Hornisgrinde

Post Flight - Turb Probe Water Traps

1. Indicate Amount of Water: a) Nil b) 1-2 drops c) ¼ full or more d) Ice present
2. Emptied by:
3. Dried by:

Pre-Flighter's Log

Date: 26/07/07

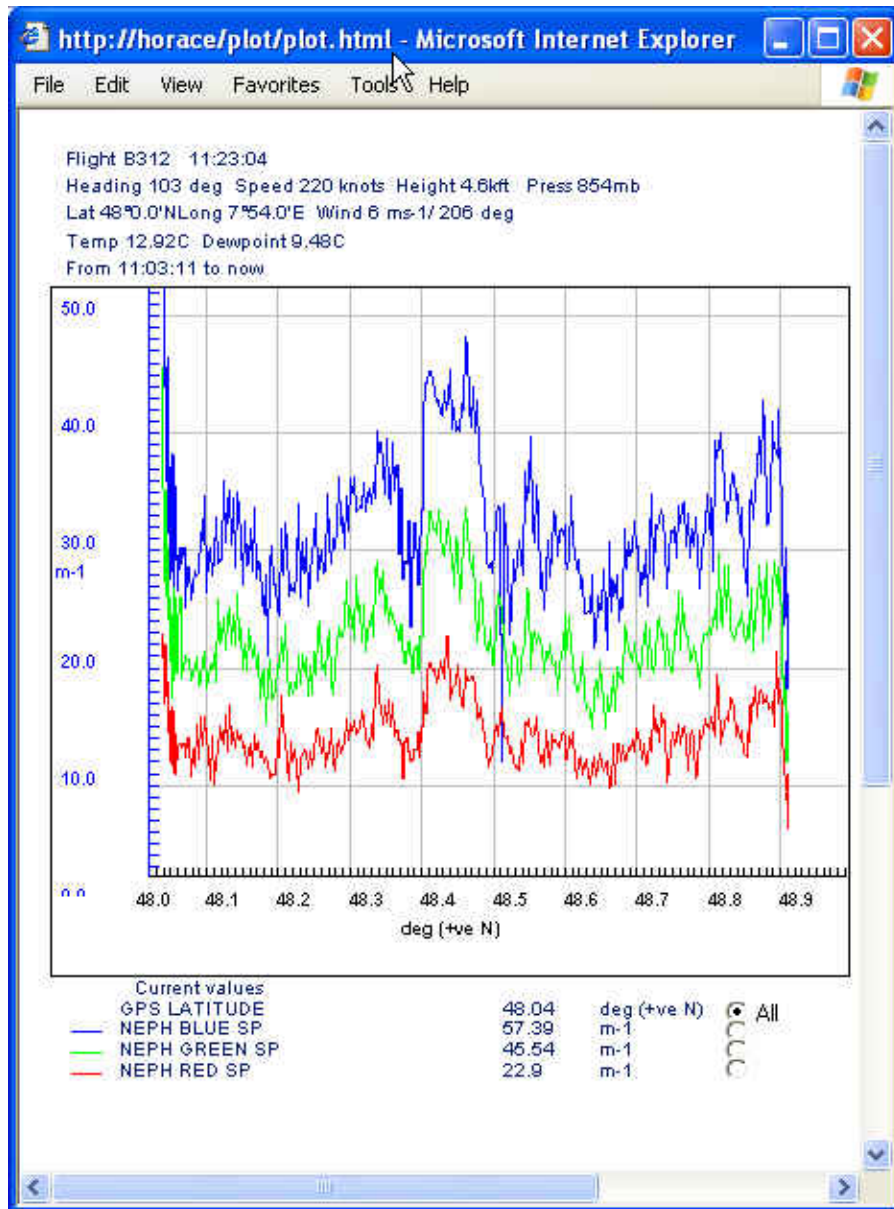
Flight No: B312

Pre-Flighter: BW

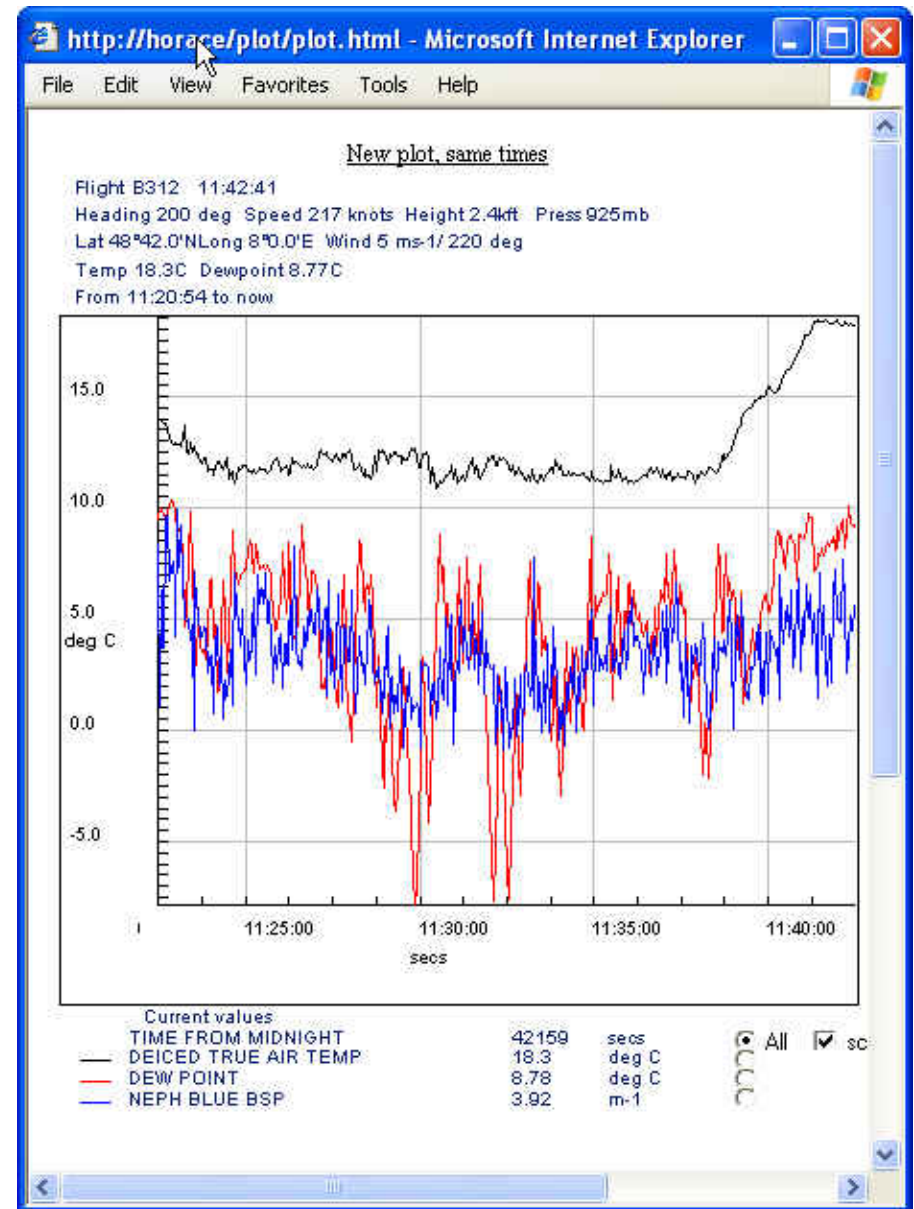
No.	√ or x	Location	Action	Comments
1	<input type="checkbox"/>	Hangar	Collect Dustbin, put on a/c	
<u>Aircraft Cabin: Power-up</u>				
2	<input checked="" type="checkbox"/>	Core Chemistry	Gases x 3 ON	
3	<input checked="" type="checkbox"/>	Cabin	All Racks Checked	
4	<input checked="" type="checkbox"/>	Fwd CorCon	All reqd CBs made	TWC
5	<input checked="" type="checkbox"/>	Aft CorCon	CBs made, PCs ON	
6	<input checked="" type="checkbox"/>	HORACE	Optical Disk loaded	
7	<input checked="" type="checkbox"/>	HORACE	Recording data	
8	<input checked="" type="checkbox"/>	HORACE	DLU Status Checked	
9	<input checked="" type="checkbox"/>	HORACE	HORACE Status Checked	
10	<input checked="" type="checkbox"/>	Satcom H	Power LED ON	
11	<input checked="" type="checkbox"/>	Nevzorov	Checked and OFF	
12	<input checked="" type="checkbox"/>	GPS	Checked	
13	<input checked="" type="checkbox"/>	INU	Align	
14	<input checked="" type="checkbox"/>	Cameras Pictures	Checked x 4 OK	
15	<input checked="" type="checkbox"/>	Core Chemistry	Instruments Checked OK	
16	<input checked="" type="checkbox"/>	Core Chemistry	CO Flows Checked OK	
17	<input checked="" type="checkbox"/>	FWVS	Set up	
18	<input checked="" type="checkbox"/>	Video x 2	Records okay, Rewind	
19	<input checked="" type="checkbox"/>	Delced Rosemount	Heater Checked / Set	
20	<input checked="" type="checkbox"/>	Heimann	Calibration Checked	
21	<input checked="" type="checkbox"/>	TWC	ON & Checked	
22	<input checked="" type="checkbox"/>	GE	Balance checked	
23	<input checked="" type="checkbox"/>	INU	Navigate then back to Align	
24	<input checked="" type="checkbox"/>	Hubs x 4	Checked ON	
25	<input checked="" type="checkbox"/>	Fwd Console	Miss. Sci Laptop CB made	& CB on Port Fwd SSP
26	<input checked="" type="checkbox"/>	CNC	Butanol filled	
27	<input checked="" type="checkbox"/>	Dry Neph	Power up & Zero Cal	No cal Attended
28	<input checked="" type="checkbox"/>	CGPS	Set up	
29	<input checked="" type="checkbox"/>	Miss. Sci Laptop	Checked Onboard	CPI seat
		Proceed to External Checks		
External Checks overleaf →				

Pre-Flighter's Log

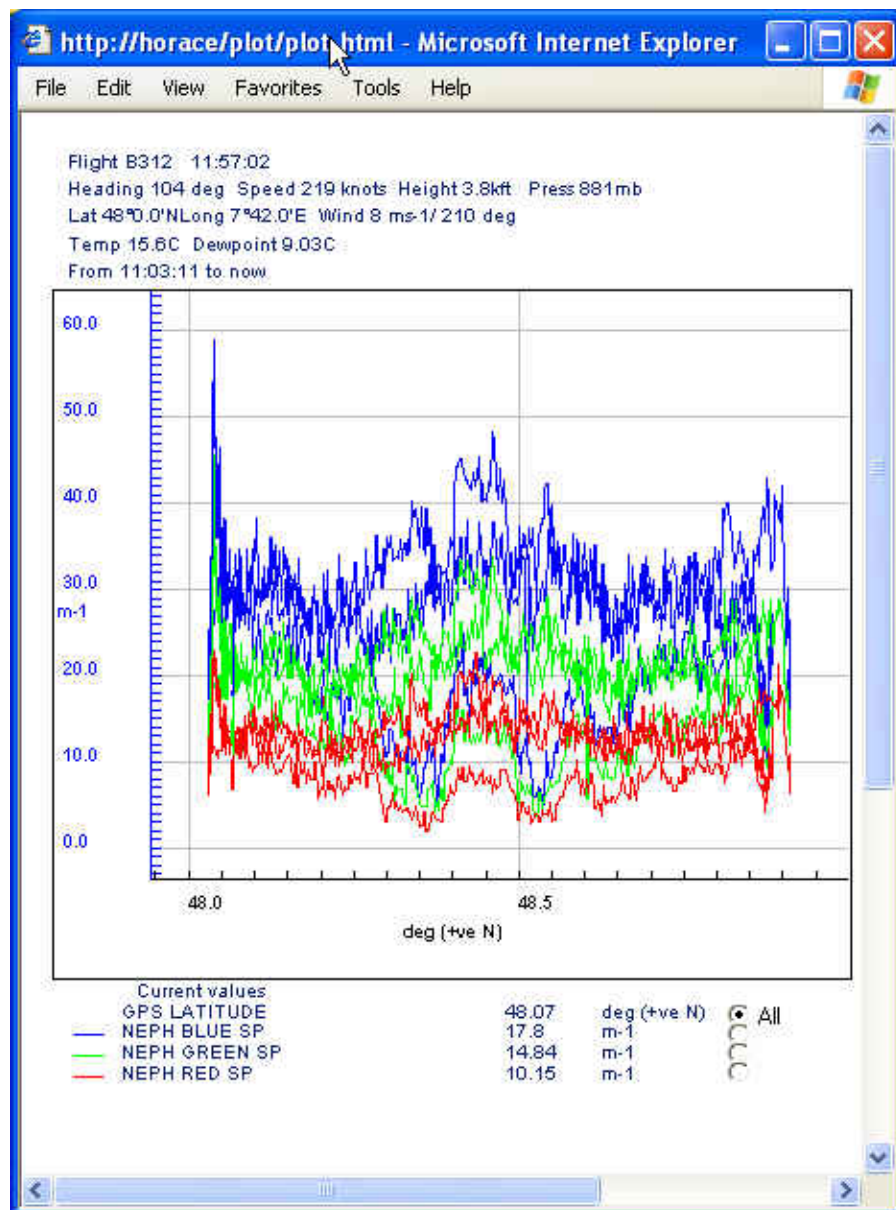
<u>No.</u>	<u>✓ or x</u>	<u>Location</u>	<u>Action</u>	<u>Comments</u>
<u>External Checks</u>				
29	<input checked="" type="checkbox"/>	Turb Probe	Clean if reqd, Photo taken	<i>No photo taken</i>
30	<input checked="" type="checkbox"/>	JW	Cleaned & Checked	
31	<input checked="" type="checkbox"/>	DI Rosemount	Cleaned & Checked	
32	<input checked="" type="checkbox"/>	NDI Rosemount	Cleaned & Checked	
33	<input checked="" type="checkbox"/>	Nevzorov	Cleaned/windings checked	
34	<input checked="" type="checkbox"/>	GE	Cleaned & Checked	
35	<input checked="" type="checkbox"/>	Lower BBRs	Domes cleaned/checked	
36	<input checked="" type="checkbox"/>	Camera Windows	Cleaned	
37	<input checked="" type="checkbox"/>	Heimann	Lens checked OK	
38	<input type="checkbox"/>	TWC Cover	Fitted if required	
39	<input type="checkbox"/>	All other covers	Removed	
40	<input type="checkbox"/>	Dustbin	Returned to hangar	
41	<input checked="" type="checkbox"/>	Tools	Check ALL in Toolkit	
42	<input checked="" type="checkbox"/>	Tools	Avalon informed	
<u>Avalon Checks</u>				
43	<input type="checkbox"/>	Upper BBRs Checked & Cleaned		Signed
44	<input type="checkbox"/>	ICEX applied		
45	<input type="checkbox"/>	Turb Probe - Traps emptied, detail contents -		a) Nil b) 1-2 drops c) 1/4 full or more
46	<input type="checkbox"/>	Turb Probe - Traps dried and resealed		



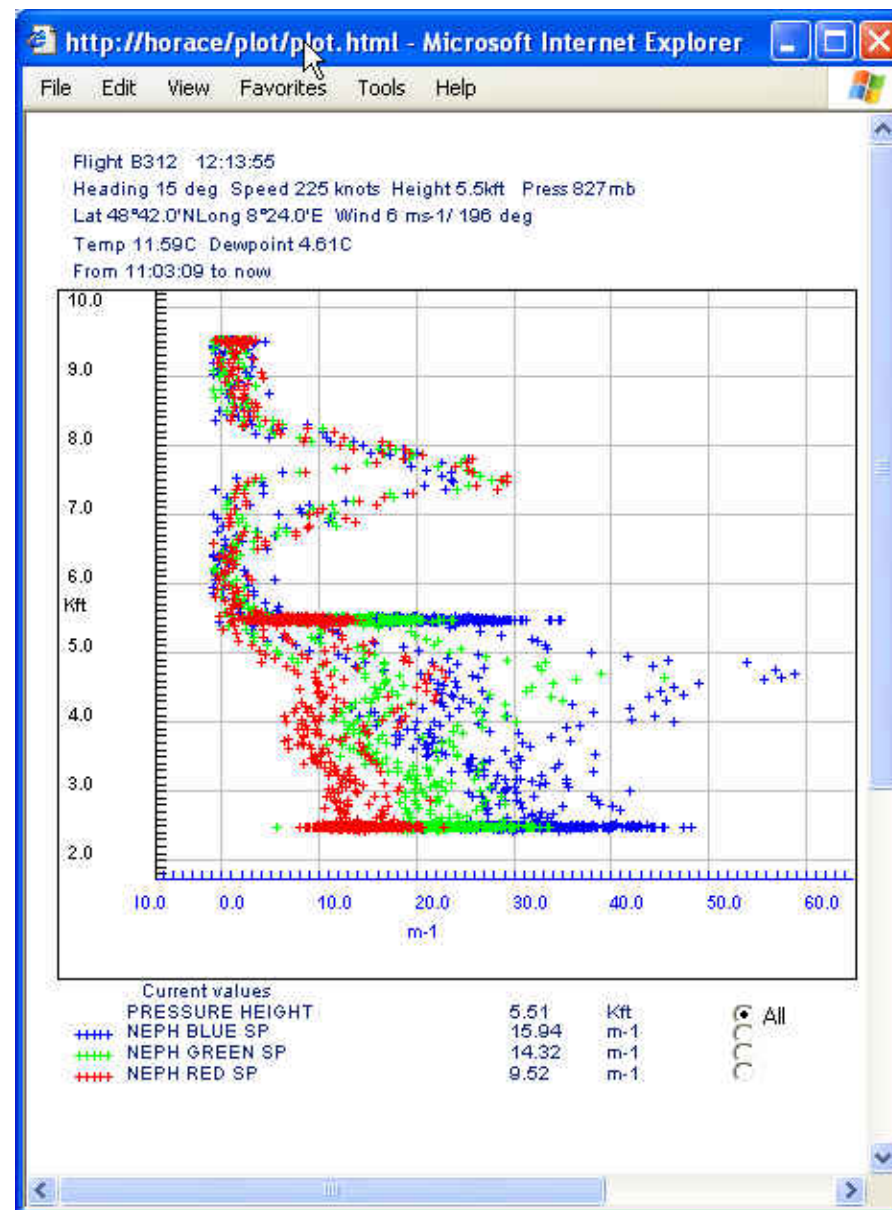
B312nephin nvalley1100R1



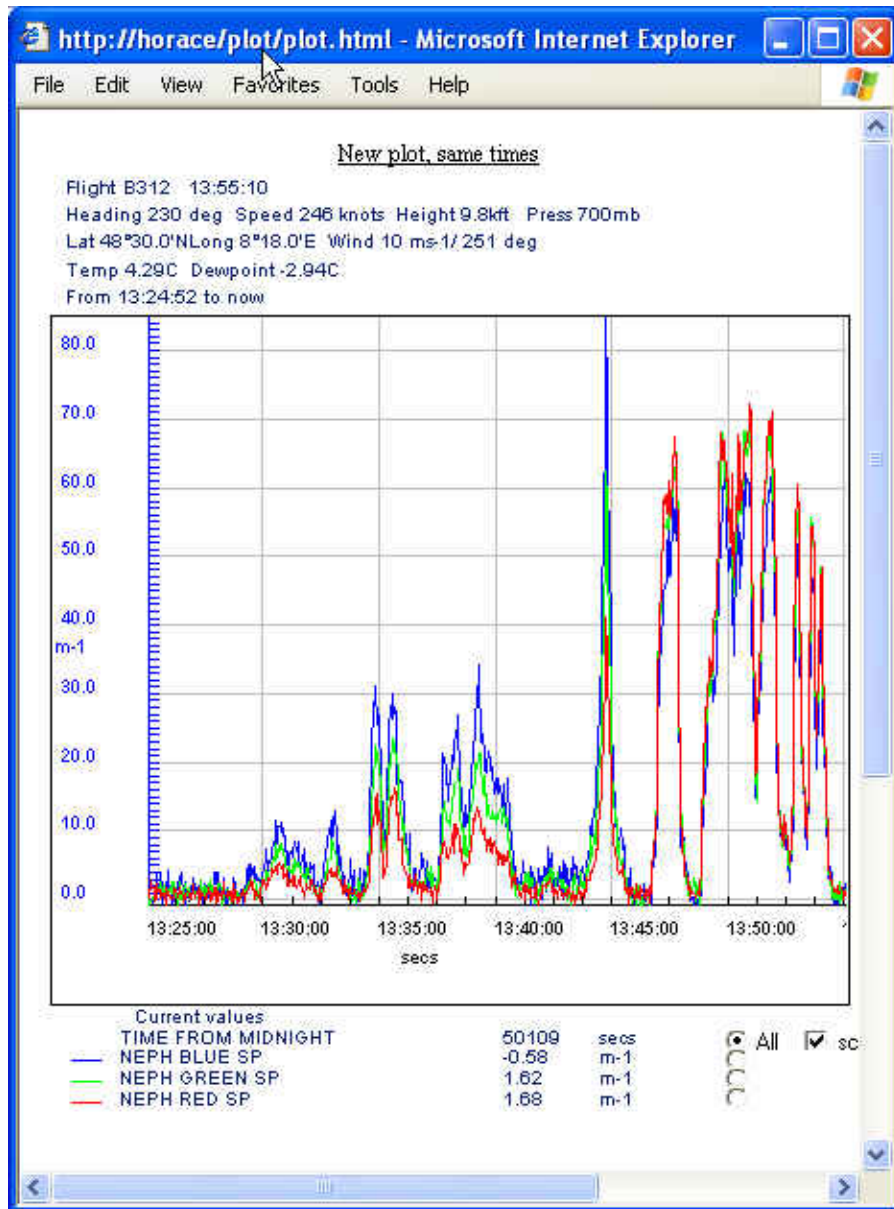
B312r2ttdnephoverBFrun2_5K



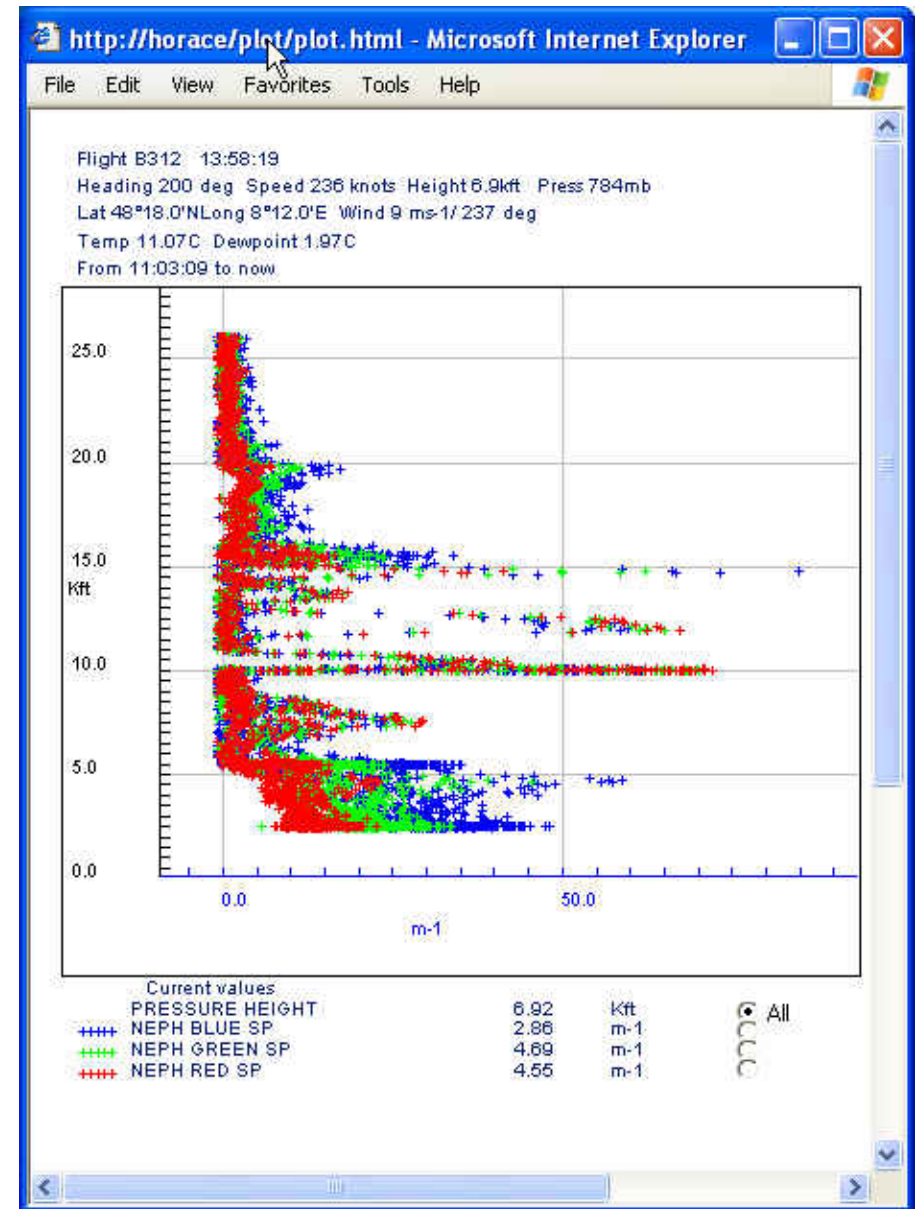
B312nephin nvalley1150R3



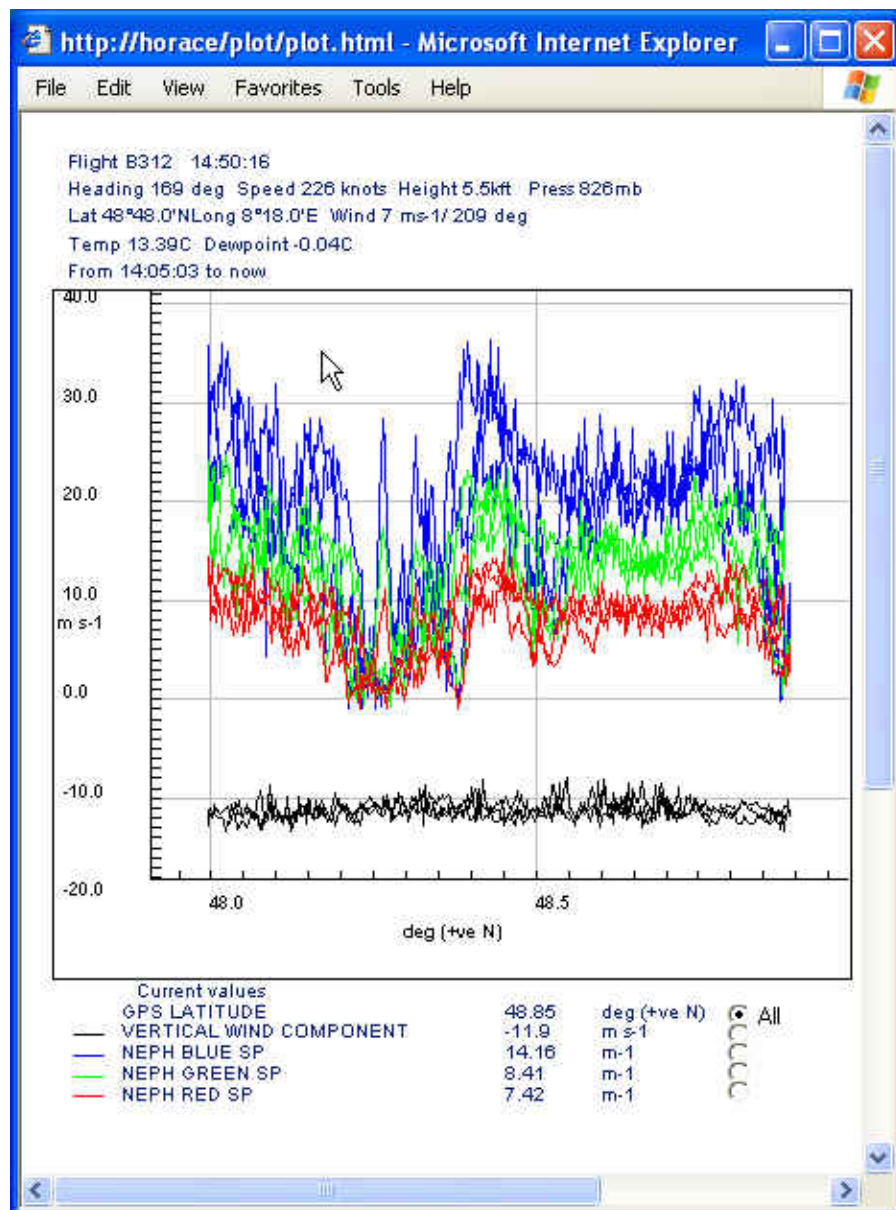
B312p5overptBdustlayer



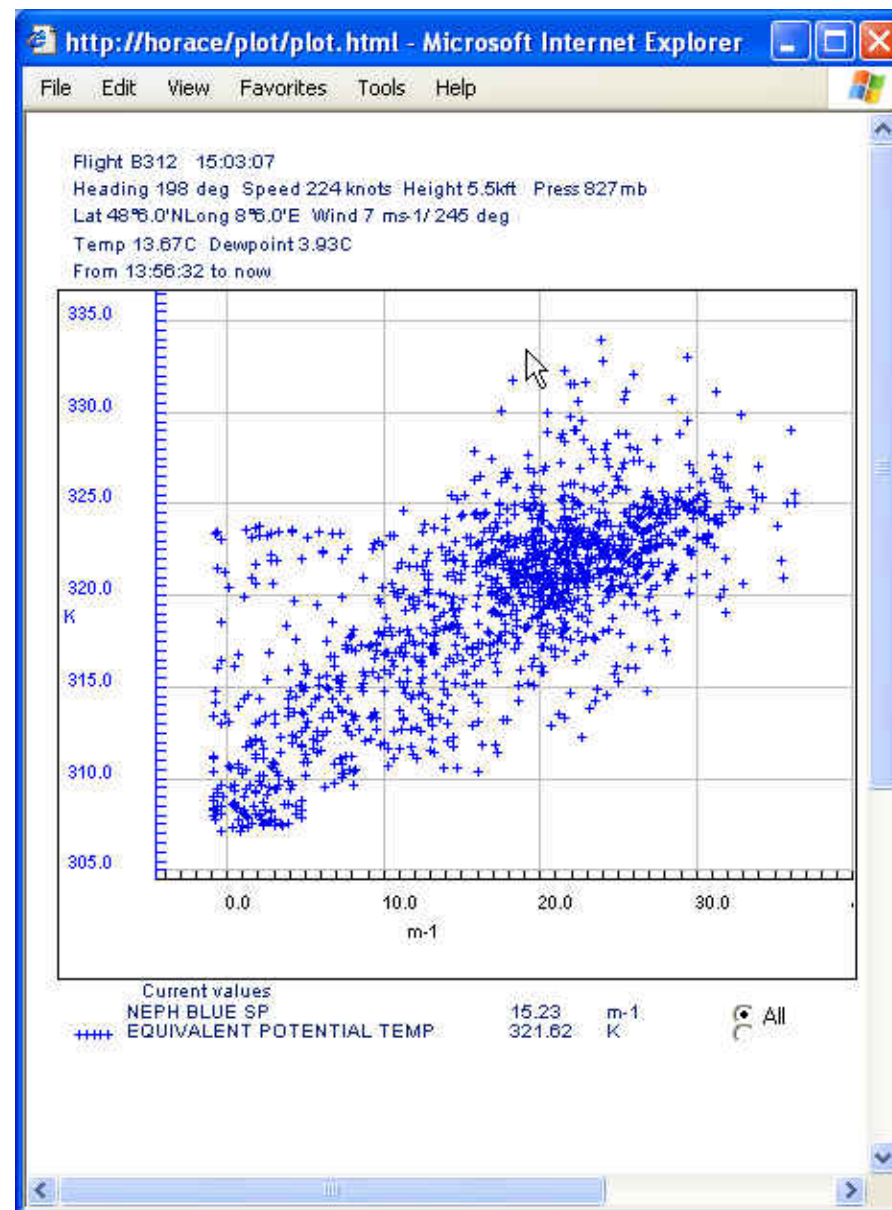
B312nephtimeindeepprofile



B312nephdeepprofile



B312nephw_slr_overBF



B312nephvsThetaqoverBF

MISSING LOG SHEETS:

The following log sheets are not available for flight B312:

Log	Reason
Core Chemistry	no In Flight log except in cases of instrument problems
VACC log	VACC operator does not create a log sheet
PSAP log	No log as PSAP pump/filter info included on Flight Summary page
AMS log	Log only of interest to instrument operator so no copy left with FAAM
CPI log	CPI operator does not create a log sheet

Document control

Revision	Date	Author	Comments
r0	23 Aug 2007	Doug Anderson	Initial version missing the above noted logs
r1	13 Sep 2007	Doug Anderson	Pre flight log added
r2			

VIDEO RECORDINGS:

3 x Upward Facing Cameras
3 x Forward Facing Cameras

Digital8 video recordings from this flight reside with :

Professor Stephen Mobbs

Director, National Centre for Atmospheric Science
Environment Building, School of Earth and Environment
University of Leeds, Leeds LS2 9JT, United Kingdom

Tel: +44 (0) 113 3435158 / 6408
Fax: +44 (0) 113 3436499

E-mail: stebbs@faam.ac.uk